Test Case Smart Tools and Procedures 2.0

for the

AWIPS

Contract

DG133W-05-CQ-1067

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Revision History

Revision	Date	Affected Pages	Explanation of Change
Draft	4 Jan. 2009	ALL	Initial Draft
1	13 Jan. 2009	ALL	Result of PDT
2	16 Jan. 2009	ALL	Result of NWS comments and PDT
3	6 Feb. 2009	ALL	Result of DT

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1.0 SCOPE

See TO10 Software Test Plan.

2.0 APPLICABLE DOCUMENTS

2.1 Source Documents

- None

2.2 Reference Documents

- Legacy NWS GFE Acceptance Test Case ID Number: ac009
- Legacy NWS GFE Test Cases for Test Areas AC – VP
- Section 3.1.3 of the AWIPS D-2D User's Manual Build 8.1
- Software Test Plan for the Advanced Weather Information Processing System Project, Contract #DG133W-05-CQ-1067, August 2008
- The Silver Spring NWS AWIPS 1 test bed application
- Release OB8.1 and OB8.2 of the Weather Event Simulator (WES)
- Rational RequisitePro

3.0 TEST CASE DESCRIPTION

This test case exercises and demonstrates the Smart Tools functionality developed during TO9 and Procedures developed in TO10.

3.1 Assumptions, Constraints and Preconditions

- Several weather elements are loaded
- There are multiple grids available for the weather elements (at minimum T, Td, Wind, Wx, and Hazards weather elements)
- TO10 software has been installed successfully
- CAVE and EDEX are running
- Data has been ingested
- A Convective Watch (e.g., Severe Thunderstorm or Tornado Watch) is readily available to be ingested.
- The GFE Perspective is displayed
- Procedures MergeHazards and SeparateHazards are tested in the Hazards Grids test case. (Note: MakeHazards is no longer a procedure but has been implemented in Java.)

3.2 Recommended Hardware

See Software Test Plan.

3.3 Test Inputs

Section 4.0 below contains the test procedures for this test case. Sections 2.2 – 2.9 of the Software Test Plan contain general test inputs applicable to all TO9 test cases. Grayed out test step(s) indicate functionality not yet delivered.

3.4 Test Outputs

The Smart Tools will be executed on images displayed in CAVE and the results outlined in section 4.0 are met. The GFE GUIs to be tested include:

- Copy All Grids From
- Edit Action Dialog
- Weather Element Browser
- Save Forecast
- ProcedureCmds Values
- QPF_SmartTool Values
- MixHgt_Init Values
- Item Delete

4.0 TEST SCENARIO

Step	Action	Result	Pass/Fail
Procedures			
1.	If weather elements are not populated in the Grid Manager (GM), Mouse Button (MB) 1 click 'Populate' -> 'Copy All Grids From…'.	The Copy All Grids From dialog opens.	
2.	From the Copy All Grids From dialog, select an available model and MB1 click 'OK'. Note: If the Empty Edit Area Warning dialog displays, MB1 click on the 'Do not show this message again' and MB1 click 'Yes'.	Grids are created from model data and placed into the Fcst database.	
3.	In the Grid Manager, MB1 click and drag over a 12 hour period on the temperature grids where grids are present.	Grids are highlighted in the Grid Manager.	
4.	MB1 click in the square box for the following weather elements (if grids are present) to highlight the same time period highlighted in step 3: Td, RH, Wind, PoP, QPF, SnowAmt, SnowLevel and FzLevel.	The same time period is highlighted for the selected weather elements.	
5.	MB1 click 'Grids' -> 'Interpolate'.	The Interpolation dialog appears.	
6.	In the Interpolation dialog, select 'Gaps' and MB1 click the 'OK' button.	The empty grids fill in with interpolated data.	
7.	For weather elements without grids, create scratch grids for the first hour and last hour for the same period highlighted in steps 3 and 4. To do this, MB3 click over the first empty block corresponding to the first hour and select 'Create From Scratch'. Repeat for the last hour in the time range. Note: For grids with time ranges longer than one hour (e.g., MaxT and MinT), create a scratch grid MB3 clicking on the grid block that overlaps the time range highlighted in steps 3 and 4.	Scratch grids are created.	
8.	MB1 click and drag over the 12 hour period on the scratch grids.	Grids are highlighted in the Grid Manager.	
9.	MB1 click in the square box for the weather elements where scratch grids were	The same time period is highlighted for the selected weather elements.	

Step	Action	Result	Pass/Fail
	created to highlight the same time period highlighted in step 8.		
10.	MB1 click 'Grids' -> 'Interpolate'.	The Interpolation dialog appears.	
11.	In the Interpolation dialog, select 'Gaps' and MB1 click the 'OK' button.	The empty grids fill in with interpolated data.	
12.	MB1 click on the Edit Action Dialog (E) button.	The Edit Actions Dialog window opens.	
13.	For grids created from scratch, Smart Tools will need to be run to populate the grids with data. To do this, MB1 click on one of the grids for one weather element.	The default grid color displays in the Spatial Editor.	
14.	MB1 click and drag over the 12 hour period for the scratch grids for the selected element.	Grids are highlighted in the Grid Manager.	
15.	MB1 click the associated Smart Tool for the selected weather element (SmartTool -> WeatherElement). For example: MaxT_SmartTool -> MaxT MinT_SmartTool -> MinT WindGust_Tool -> WindGust WindChillTool -> WindChill HeatIndexTool -> HeatIndex	All available grids have data. Smart Tools populate grids with data.	
16.	Close the Edit Actions dialog when completed.	The Edit Actions Dialog window closes.	
17.	MB1 click 'WeatherElement' -> 'Weather Element Browser…'. From the Weather Element Browser dialog, load in the Fire Wx and Marine weather element groups selecting 'File' -> 'Load Weather Element Group' -> 'Fire Wx', and 'File' -> 'Load Weather Element Group' -> 'Marine'. MB1 click 'Load and Dismiss'.	The fire weather and marine weather elements load into the GFE.	
18.	Scroll through the weather elements in the GM. Use the Copy All Grids From functionality to populate the GM.	The GM populates with the fire weather and marine weather elements. Data is available for most of the elements. Some of the elements are 'very long', e.g., a single grid spanning many days. Examples of this include HrsOfSun and InvBurnOffTemp.	DR #1346
19.	MB1 click 'WeatherElement' -> 'Weather Element Groups' -> 'Public' to load just the public elements.	Only the public elements appear.	

Step	Action	Result	Pass/Fail
20.	Bring up the Weather Element Browser selecting 'WeatherElement' -> 'Weather Element Browser'. Add 'MixHgt' to the list of weather elements to be loaded by pulling down the Field menu. Then MB1 click 'Load and Dismiss'.	MixHgt is added to the list of weather elements.	
21.	Save all forecast data by MB1 clicking the  toolbar button. From the Save Forecast dialog, ensure all weather elements are selected. Then MB1 click the 'Save Forecast' button.	The Save Forecast dialog appears. All weather elements are selected. The grids are saved as indicated by the replacement of the green locks with a black background. The Save Forecast dialog closes.	
22.	MB1 click 'Populate' -> 'ProcedureCmds'.	A ProcedureCmds Values dialog displays.	
23.	From the ProcedureCmds Values dialog, select 'All' for the Model Elements, select an entry for the Model, a beginning hour, and select an entry from the Initialize Model. Then MB1 click 'Run/Dismiss'.	A dialog displays stating 'Loading Grids'. When the procedure finishes, the small dialog is dismissed. Many grids have been modified. Some are interpolated. Some errors may be reported, such as no grids to interpolate or no corresponding grids.	
24.	Save all forecast data using the  toolbar button.	The weather elements save.	
25.	MB1 click 'GFE' -> 'Show Warnings' -> 'Show Empty Edit Area Warning' to unselect the option. MB1 click 'GFE' -> 'Show Warnings' -> 'Show Edit Action Time Range Warning' to unselect the option.	The Show Empty Edit Area Warning and Show Edit Action Time Range Warning lines are not checked.	
26.	MB1 click on a T grid in the GM. Then MB1 drag over several T grids in the GM to select them. Include the grid that was just clicked upon. Select the Sample Tool  from the toolbar and MB1 click at several points on the displayed grid. Note the data values and the appearance of the grid. Clear any existing edit area using the  toolbar button. MB1 click 'Edit' -> 'ExProc1'.	The grid and Spatial Editor are set up for the next step. The data selected in the GM is modified by running the Adjust_Up smart tool followed by the Smooth tool.	
27.	Save all forecast data using the  toolbar button.	The forecast is saved.	

Step	Action	Result	Pass/Fail
28.	MB1 click 'Verify' -> 'ExProc2'. From the ExProc2 Values dialog, select one of the GFS80 or NAM12 models. Then MB1 click 'Run/Dismiss'.	Several T grids are created from scratch as shown by the S indicator in the GM and the green locks in the GM. Elements T, Wind, and Wx are copied from the selected model into the Fcst database, as shown by the model name (or abbreviation) in the GM and additional green locks in the GM. Another dialog is displayed labeled ExSS4 Values.	
29.	Choose one of the NAM12 models from the ExSS4 Values Dialog and press Ok.	The ExSS4 smart tool is executed which makes a numerical sounding, and then calculates the T based on the model sounding data and the topography. Some of the T grids which were created from scratch in step #10 will now show an 'm' for modified due to the smart tool execution.	
30.	Save all forecast data using the  toolbar button.		
CheckTandTd Procedure			
31.	Select a MinT grid.	The MinT grid displays in the Spatial Editor.	
32.	MB1 click '20' on the colorbar. Then MB3 click and hold within the Spatial Editor and select 'Assign Value'.	The value of the MinT grid is set to 20.	
33.	Select the next available MaxT grid.	The MaxT grid displays in the Spatial Editor.	
34.	MB1 click '1' on the colorbar. Then MB3 click and hold within the Spatial Editor and select 'Assign Value'.	The value of the MaxT grid is set to 1.	
35.	Select 'Consistency' -> 'CheckTandTd' from the main menu.	The Title Values window opens.	
36.	Leave the radio button on 'check only'. MB1 click the 'OK' button.	The Title Values window closes.	
37.	Confirm that a new grid, 'MaxLessThanMin', has been added to the grid manager.	Verified.	
38.	Verify the time range matches the time range of the MaxT grid. Verify it has a value of 0 everywhere except within the site edit area where MaxT was less than MinT.	Verified.	

Step	Action	Result	Pass/Fail
39.	Select a MaxT grid.	The MaxT grid displays in the Spatial Editor.	
40.	MB1 click '1' on the colorbar. Then MB3 click and hold within the Spatial Editor and select 'Assign Value'.	The value of the MaxT grid is set to 1.	
41.	Select the next available MinT grid (create one from scratch if one does not exist).	The MinT grid displays in the Spatial Editor	
42.	MB1 click '20' on the colorbar. Then MB3 click and hold within the Spatial Editor and select 'Assign Value'.	The value of the MinT grid is set to 20.	
43.	Select 'Consistency' -> 'CheckTandTd' from the main menu.	The Title Values window opens.	
44.	Leave the radio button on 'check only'. MB1 click the 'OK' button.	The Title Values window closes.	
45.	Confirm that a new grid, 'MinGreaterThanMax', has been added to the grid manager.	Verified.	
46.	Verify the time range matches the time range of the MinT grid. Verify it has a value of 0 everywhere except within the site edit area where MinT was greater than MaxT	Verified.	
47.	Generate a T grid that where its temperature value is less than MinT for a time range overlapping MinT grid.	The T grid has a value less than that in the MinT grid.	
48.	Run the 'CheckTandTd' procedure in 'check only' mode.	A 'TLessThanMin' grid is produced for the same time range as T.	
49.	Generate a T grid that where its temperature value is greater than MaxT for a time range overlapping MaxT grid.	The T grid has a value greater than that in the MaxT grid.	
50.	Run the 'CheckTandTd' procedure in 'check only' mode.	A 'TGreaterThanMax' grid is produced for the same time range as T.	
51.	Generate a Td grid that where its temperature value is greater than the corresponding T grid.	The Td grid has a value greater than the corresponding T grid.	
52.	Run the 'CheckTandTd' procedure in 'check only' mode.	A 'TdGreaterThanT' grid is produced for the same time range as T.	
53.	Generate a T grid that where its temperature value is less than MinT for a time range overlapping MinT grid.	The T grid has a value less than that in the MinT grid.	
54.	Run the 'CheckTandTd' procedure in 'force' mode.	The T grid becomes equal to the MinT grid within the site edit area	

Step	Action	Result	Pass/Fail
		where the values are 'upside-down'.	
55.	Generate a T grid that where its temperature value is greater than MaxT for a time range overlapping MaxT grid.	The T grid has a value greater than that in the MaxT grid.	
56.	Run the 'CheckTandTd' procedure in 'force' mode.	The T grid becomes equal to the MaxT grid within the site edit area where the values are 'upside-down'.	
57.	Generate a Td grid that where its temperature value is greater than the corresponding T grid.	The Td grid has a value greater than the corresponding T grid.	
58.	Run the 'CheckTandTd' procedure in 'force' mode.	The Td grid becomes equal to the T grid within the site edit area where the values are 'upside-down'.	
CheckTTdWind Procedure			
59.	Select a Wind grid.	The Wind grid displays in the Spatial Editor.	
60.	MB1 click '3640' (360 degrees direction – 40kts wind speed) on the colorbar. Then MB3 click and hold within the Spatial Editor and select 'Assign Value'.	The value of the Wind grid is set to 40.	
61.	Modify a WindGust grid for an overlapping time range and location with a wind speed of 39kts or lower.	The WindGust grid contains values less than or equal to 39kts.	
62.	Run the 'CheckTTdWind' procedure in 'check only' mode. Confirm that the appropriate 'WindGreaterThanGust' grid is created for the 'check only' mode.	Verified.	
63.	With the Wind grid contining wind speeds greater than the corresponding WindGust grid, run the 'CheckTTdWind' procedure in 'force' mode.	The WindGust grid becomes equal to the Wind grid within the site edit area where the values are 'upside-down'.	
PlotSPCWatches Procedure			
64.	Obtain a Severe Thunderstorm or Tornado Watch as issued by the Storm Prediction Center that includes counties that fall in the OAX WFO's area.	A Watch is available.	
65.	Modify the watch's start and end time to be a time in the near future (within the next 24 hours or so). Do this by changing the times on all of the VTEC lines (e.g., 081016T2230Z translates to 2008-10-16 at 2230Z). See Figure 5-1 on page 20 for a SPC Watch example.	The watch is modified accordingly.	

Step	Action	Result	Pass/Fail
	(Note: This example may be used when copied and pasted into a separate document and the shaded regions updated with the appropriate time and date.)		
66.	Ingest the watch product by copying the Watch text product from the SPC into EDEX's sbn/warning directory. (Refer to the Warning Ingest Instructions document for instructions on how to ingest products into the sbn/warning directory.) Watch Guardian for a notification message that a watch was received from the SPC.	The watch is ingested.	
67.	In the GFE perspective, select 'Hazards' -> 'PlotSPCWatches'.	The PlotSPCWatches procedure runs.	
68.	Once it's complete, verify a new hazards grid appears in the Hazards parm.	Verified.	
69.	Select that hazards grid to view it. Verify the hazard matches the type of watch, has the watch number as issued by the SPC and covers the correct counties.	Verified.	
70.	Save the hazards grids.	The hazards grids are saved.	
QPF_SnowAmt Procedure			
71.	Ensure there are valid grids for a single range of time with the following requirements: -Temperature grids with values < 32F -Wind grids are available -QPF grids with values > 0 -Freezing Level grids with values < 2000ft	The grids are available.	
72.	Create scratch grids for SnowAmt.	SnowAmt grids are created.	
73.	Highlight a range of SnowAmt and QPF grids. Then MB1 click 'Edit' -> 'QPF_SnowAmt'.	A range of SnowAmt and QPF grids are highlighted. The Title Values dialog opens.	
74.	Set the Vertical Motion Influence to any value and MB1 click the 'OK' button.	The Title Values dialog closes. The QPF and SnowAmt grids modify accordingly.	
75.	MB1 click the Save button to save all modified grids.	All modified grids are saved.	
Smart Tools			
76.	MB1 click on a QPF grid with some non-zero QPF values that also has a corresponding Wind grid. MB3 popup over the main area of the Spatial Editor	A Title Values dialog appears.	

Step	Action	Result	Pass/Fail
	(SE) and select 'QPF_SmartTool'.		
77.	Set the Vertical Motion Influence to the maximum value and MB1 click 'OK'.	The grid indicator in the GM turns cyan to indicate that grid is being calculated. The progress bar in the status bar moves from left to right as the grid points are calculated. After the calculation is finished, the QPF field is modified based on upslope/downslope conditions derived from the wind and topography.	
78.	MB1 click on the first T grid that corresponds to the time for the edited QPF grid.	The T grid is selected for the same time period as the edited QPF grid.	
79.	MB1 click between 20 and 30 on the colorbar to set the pickup value.	The value is set in the colorbar.	
80.	MB3 popup over the same T grid in the GM and select 'Assign xxx', where xxx is your pickup value.	The T grid in the Spatial Editor updates to the selected temperature value.	
81.	MB1 click on the corresponding (valid for the same time) FzLevel grid. MB1 click on the color bar on a value that represents the elevation that is below most of your terrain.	The FzLevel grid is selected for the same time period as the edited QPF and T grids.	
82.	MB3 popup over the same FzLevel grid in the GM and select 'Assign xxx', where xxx is your pickup value.	The FzLevel grid in the Spatial Editor updates to the selected value.	
83.	MB1 click on the corresponding SnowAmt grid. MB3 popup over the main area of the SE and select 'SnowAmt_SmartTool'.	The SnowAmt data is changed based on the QPF, T, and FzLevel values. (You might need to use MB3 popup over the color bar and select 'Fit To Data' -> 'Single Grid' to see the detail.)	
84.	Load the FireWx weather element group MB1 clicking 'WeatherElement' -> 'Weather Element Groups' -> 'FireWx'. Answer 'Save First' to the Modified Weather Element(s) dialog that is displayed.	The modified data is saved and the FireWx elements are loaded.	
85.	Bring up the Weather Element Browser MB1 clicking 'WeatherElement' -> 'Weather Element Browser'. Select 'T' from the Field pull-down and MB1 click 'Load and Dismiss'.	T is added to the GFE.	

Step	Action	Result	Pass/Fail
86.	MB1 click ‘GFE’ -> ‘Editing Preferences’ -> ‘Missing Data Mode’ -> ‘Create’.		
87.	MB1 click on a MixHgt grid in the GM. MB3 popup over the main area of the SE and select ‘MixHgt_Init’.	The MixHgt_Init Values dialog displays.	
88.	Choose one of the previous NAM12 models that are presented in the dialog and MB1 click ‘Run/Dismiss’.	The mixing height grid is calculated.	
89.	Revert your modified grids by selecting ‘Edit’ -> ‘Revert Forecast’. Load the Public weather element group MB1 clicking ‘WeatherElement’ -> ‘Weather Element Groups’ -> ‘Public’.	Modified data is discarded and the public weather elements are displayed.	
90.	MB1 click on the same SnowAmt grid as in step #17. Bring up the Edit Actions Dialog window using the  toolbar button. Select ‘ExTool1’.	The SnowAmt grid is modified to contain 10*QPF.	
91.	Select ‘ExTool2’.	The SnowAmt grid is modified again, this time determined by T and QPF.	
92.	Select ‘ExTool3’. The ExTool3 Values dialog appears. Enter a snow level corresponding to the topography in your area. MB1 click ‘Run/Dismiss’.	The SnowAmt grid is modified again.	
93.	MB1 click on a QPF grid in the GM that contains some QPF values. Select ‘ExSS1’ from the Edit Actions Dialog window.	The QPF values are recalculated based on the existing QPF data and the QPF data from the NAM12 model.	
94.	Select ‘ExSS2’ from the Edit Actions dialog. The ExSS2 Values dialog displays. Select one of the models that generate QPF, but not NAM12.	The QPF values are recalculated. Areas where 0 QPF existed on the grid, but the model has QPF values are replaced with the model's QPF values.	
95.	MB1 click on a T grid that corresponds to 00z or 12z. Select ‘ExSS4’ from the Edit Actions dialog. Select one of the NAM12 models and MB1 click ‘Run/Dismiss’.	A numerical sounding is calculated and the T determined from the model data.	
96.	MB1 click on another T grid that corresponds to 00z or 12z. Select ‘ExSS5’ from the Edit Actions dialog. Select a different model (e.g., GFS80) and MB1 click ‘Run/Dismiss’.	A numerical sounding is calculated and T is determined from the model data.	
97.	MB1 click on a T grid that has a corresponding Td grid. Select ‘ExSS6’	A new weather element is created with the name of TempRH and the	

Step	Action	Result	Pass/Fail
	from the Edit Actions dialog.	model name of TempModel. It appears near the bottom of the GM. It contains the calculated RH from the T and Td grids.	
98.	MB1 click on a Wx grid in the GM that has a corresponding PoP grid. The PoP grid should have a range of values from 0 through 100%. Select 'ExSS7' from the Edit Actions dialog.	The Wx grid is modified based on the PoP.	
99.	MB1 click on a PoP grid that has a corresponding Wx grid. The Wx grid should have some areas of <NoWx>, Chc RW-, Sct RW-, and Wide R. Select 'ExSS8' from the Edit Actions dialog.	The PoP grid is modified based on the Wx.	
100	Click on a T grid. Select 'ExUtil1' from the Edit Actions dialog. The ExUtil1 Values dialog displays. Select one of the NAM12 models and MB1 click 'Run/Dismiss'.	The T grid is recalculated and on the terminal window where GFE was run, a statement of 'Using Utility Version of convertFtToM' displays.	
101	Save all forecast data by MB1 clicking the  toolbar button.	The forecast data is saved.	
102	MB1 click on a T grid in the GM that corresponds to a grid within the 'Tonight' period as displayed in the time scale. Select the Sample Tool  from the toolbar. MB1 click on several samples; some within the ISC_OAX edit area, and some outside.	The T grid displays. The Samples display within and outside of the ISC_OAX edit area.	DR #1364
103	From a terminal window, and from the GFESuite 'bin' directory, issue the following command: runProcedure -n ExProc1 -d xxx_GRID__Fcst_00000000_0000 -u GFETEST -c gfeConfig -a ISC_Send_Area -t Tonight where xxx is your siteID.	T grids that overlap the Tonight period will be modified. The T data will be increased by 1 degree and then smoothed, within the ISC_Send_Area.	
New Smart Tool			
104	Bring up the Edit Actions Dialog using the  toolbar button.	The Edit Action dialog box opens.	
105	MB3 popup over the Edit Actions Dialog window and select 'New'. On the dialog that will be displayed, ensure that 'Numeric' is selected on the radio buttons	The Python editor window/perspective appears containing the smart tool template.	

Step	Action	Result	Pass/Fail
	(at the bottom). Enter 'TEST001' for the tool name at the top. Select 'T' as the weather element to edit. MB1 click 'OK'.		

106	Replace the execute() function in the template with the following code, leaving the rest of the template alone:
	def execute(self, T):
	'Increment T'
	# Determine new value
	T = T + 5
	# Return the new value
	return T
		The code is modified.	

107	On the Python editor window, MB1 click 'File' -> 'Save'. MB1 click the 'X' on the Python Editor window. Then close the Python perspective.	The edited code is saved.	
108	MB1 click the Draw Edit Area tool  icon. Draw a closed area using MB1 drag on the displayed grid.	An enclosed area appears on the GFE display.	
109	MB1 click on the 'TEST001' entry in the Edit Actions dialog.	The smart tool is executed and the data values increase incrementally by 5.0.	
110	MB1 drag across several T grids in the GM to select them. MB1 click on the 'TEST001' entry in the Edit Actions Dialog window.	The smart tool is executed and the data values increase incrementally by 5.0 in each of the grids.	
111	MB3 popup over the Edit Actions Dialog window entry of TEST001 and select 'Modify'.	The Python editor window pops up, containing the smart tool template.	

112	Replace the execute() function in the template with the following code, leaving the rest of the template alone:
	def execute(self, T, Td):
	'Assign T to Td+10'
	# Determine new value
	T = Td + 10
	# Return the new value
	return T
		The code is modified.	

113	On the Python editor window, MB1 click 'File' -> 'Save'. MB1 click the 'X' for the Python Editor window. Then close the Python perspective.	The edited code is saved.	
114	Using the Draw Edit Area tool  icon,	An enclosed area appears on the GFE display.	

Step	Action	Result	Pass/Fail
	draw a closed area using MB1 drag on the displayed grid.		
115	MB1 click on a T grid in the GM to make the T grid visible and editable. The T grid selected must have a corresponding Td grid (i.e., valid at the same time). If not, create from scratch a Td grid at the same time and then MB1 click again on the T grid.	The T grid is visible and in edit mode. If necessary, a Td grid is created.	
116	MB1 click on the 'TEST001' entry in the Edit Actions Dialog window.	The smart tool is executed and the data values are set to 10 degrees above the corresponding Td field.	
117	MB3 popup over the TEST001 entry on the Edit Actions Dialog window and MB1 click 'Delete'. Select 'OK' in the Item Delete dialog to remove the 'TEST001' smart tool. Verify the 'TEST001' smart tool entry is removed from the Edit Actions dialog.	The TEST001 entry is removed from the Edit Actions dialog window.	
118	Exit GFE.	GFE closes.	
End of test.			

5.0 TO9 REQUIREMENTS VERIFICATION TRACEABILITY MATRIX (RVTM)

Number	Description	Test Step(s)
SYSR2071	The AWIPS system shall implement the GFE Smart Tool Widgets (create a set of GUI widgets that are accessible from a Smart Tool script).	ALL
SYSR2072	The AWIPS system shall implement the GFE Smart Tool Interface.	ALL
SYSR2100	The AWIPS system shall implement the Smart Init Interface to enable initializing from model data.	1
SYSR2102	The AWIPS system shall implement the Smart Tool Interface with a library of functions for use by smart tools	15
SYSR2118	The AWIPS GFESuite shall implement the GFE Smart Tools and Procedures.	ALL
SYSR2491	The AWIPS GFESuite shall implement ifpServerText - Smart Tools.	ALL
SYSR2597	The AWIPS GFESuite shall implement Create, Modify, and Delete smart tools to modify scalar weather elements.	104-118
SYSR2601	The AWIPS GFESuite shall implement Create, Modify, and Delete a Procedure that consists of tools that modify the same weather element.	
SYSR2602	The AWIPS GFESuite shall implement Create, Modify, and Delete a Procedure that consists of tools that modify various weather elements.	

Table 5-1. SPC Tornado Watch to be used for the PlotSPCWatches procedure. The shaded areas require times or dates that should be updated.

```
WOUS64 KWNS 031635
WOU9

BULLETIN - IMMEDIATE BROADCAST REQUESTED
TORNADO WATCH OUTLINE UPDATE FOR WT 439
NWS STORM PREDICTION CENTER NORMAN OK
1035 AM CDT TUE FEB 03 2009

TORNADO WATCH 439 IS IN EFFECT UNTIL 500 PM CDT FOR THE
FOLLOWING LOCATIONS

IAC001-003-009-029-071-077-085-129-137-145-155-159-165-173-175-
032300-
/O.NEW.KWNS.TO.A.0439.090203T1700Z-090203T2300Z/

IA
.    IOWA COUNTIES INCLUDED ARE

ADAIR                ADAMS               AUDUBON
CASS                 FREMONT             GUTHRIE
HARRISON             MILLS               MONTGOMERY
PAGE                 POTTAWATTAMIE       RINGGOLD
SHELBY               TAYLOR              UNION


KSC013-043-117-131-032300-
/O.NEW.KWNS.TO.A.0439.090203T1700Z-090203T2300Z/

KS
.    KANSAS COUNTIES INCLUDED ARE

BROWN                DONIPHAN            MARSHALL
NEMAHA


MOC003-005-025-063-075-087-147-227-032300-
/O.NEW.KWNS.TO.A.0439.090203T1700Z-090203T2300Z/

MO
.    MISSOURI COUNTIES INCLUDED ARE

ANDREW               ATCHISON            CALDWELL
DEKALB               GENTRY              HOLT
NODAWAY              WORTH


NEC025-055-067-097-109-127-131-133-147-153-032300-
/O.NEW.KWNS.TO.A.0439.090203T1700Z-090203T2300Z/

NE
.    NEBRASKA COUNTIES INCLUDED ARE
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CASS                 DOUGLAS              GAGE
JOHNSON              LANCASTER            NEMAHA
OTOE                 PAWNEE               RICHARDSON
SARPY

ATTN...WFO...DMX...OAX...EAX...TOP...
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